

A Power Boosting Technique For Wireless Multi-Carrier Power Amplifiers

Inventor: Kiomars Anvari

Abstract:

A technique for peak suppressing and pre-distorting the input signal to multi-carrier wireless radio frequency amplifiers to improve the power handling or boost the operating point of the amplifier and subsequently significantly improving the power efficiency of the amplifier is described. The input to the multi-carrier amplifier is modified by a peak suppression and pre-distortion circuit, prior to being applied to the amplifier. The peak suppression and pre-distortion circuit uses a phase generator to create appropriate phase for each carrier to suppress the peak of the multi-carrier signal. The peak suppression and pre-distortion circuit uses samples of the output of the amplifier to adaptively adjust a lookup table that is being used for pre-distortion. The input to the peak suppression and pre-distortion circuit could be a baseband, an intermediate frequency (IF) or radio frequency (RF) signal. The peak suppression and pre-distortion is performed in digital domain at baseband.